## IN THE CLAIMS:

- A. Please cancel claim & without prejudice or disclaimer.
- B. Please amend claims 1, 8, 9, 13, 14, 16, 17, 18, 22 and 34-40 as follows:

## Amended Claims With Mark-ups to Show Changes Made

- (Thrice Amended) A method of establishing a communication channel between
  a base station and a mobile station, comprising:
- (a) generating control signals and data signals within the communication channel, said
  control signals having a first sequence of L-bits and a second sequence of L-bits;
- (b) autocorrelating the first and second sequences to generate first and second autocorrelated values;
- (c) \( \) cross-correlating the first and second sequences to generate first and second crosscorrelated values; and
- (d) combining the first and second autocorrelated values and the first and second cross-correlated values, wherein the communication channel comprises a plurality of frames, each frame having L number of slots and each slot has N number of pilot bits such that there are N number of sequences of L-bits in a frame, said first and second sequences being sequences of the N number of sequences.

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- 8. (Amended) The method of claim [6] 1, wherein between adjacent sequences, there are a prescribed number b<sub>3</sub> of bit values which are the same and there a prescribed number b<sub>4</sub> of bit values which are different such that b<sub>3</sub>-b<sub>4</sub> is +1 or -1.
- 9. (Twice Amended) The method of claim [6] 1, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

 (Amended) A method of establishing a communication channel, the method comprising:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits

which are different between the two adjacent words from 1 to 15 is +1 or -1, wherein the pilot bits are used in a communication system.

14. (Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising:

generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number  $(b_0)$  of bit values equal to "0" and a second prescribed number  $(b_1)$  of bit values equal to "1" such that  $b_1$ - $b_0$  is +1 or -1, wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and opposite in polarity, are formed, wherein the pilot bits are used in a communication system.

 (Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number

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of N words has a first prescribed number  $b_0$  of bit values of "0" and a second prescribed number  $b_1$  of bit values of "1", such that  $b_1$ - $b_0$  is +1 or -1, wherein the pilot signals are used in a communication system.

- 17. (Amended) A communication link between a user equipment and a base station comprising a plurality of layers, wherein one of the layers is a physical layer for establishing communication between the user equipment and the base station and the physical layer has at least one of data and control information, one of the control information being a pilot field of N-bits transmitted for 15 slots such that N words of 15 bits are formed, wherein a pair of N words is cross-correlated and a pair of N words is autocorrelated, wherein the pilot field of N-bits is used in a communication system.
- 18. (Amended) Pilot sequences for at least one of radio frame synchronization and channel estimation of a communication system comprising:
- a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point; and,
- a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein

the first and second code sequences have a significant cross-correlation values having

polarity opposite to said significant autocorrelation value at a specific delay point, and the first and second code sequences are used in a communication system.

22. (Amended) Pilot sequences for at least one of frame synchronization and channel estimation of a wireless communication system comprising:

a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point; and

a second binary code sequence having the same autocorrelation characteristic as the first code sequence, wherein

the first and second binary code sequences have maximum autocorrelation values at the same specific delay point, and the first and second binary code sequences are used in a wireless communication system.

34. (Twice Amended) A frame structure for a communication system, each frame having 15 slots and each slot having N number of pilot bits, where 2s Ns 16, such that there are N number of pilot bit patterns of 15 bits in the frame, wherein the improvement comprises N number of pilot bit patterns having at least one of the following pilot bit patterns:

Slot No	1 2 3 415
Pilot bit pattern 1 = (1	0 0 0 1 1 1 1 0 1 0 1 1 0 0)
Pilot bit pattern 2 = (1	01001101110000)
Pilot bit pattern 3 = (1	10001001101011)
Pilot bit pattern 4 = (0	01010000111011)
Pilot bit pattern 5= (1	1 1 0 1 0 1 1 0 0 1 0 0 0 1)
	10111000010100)
Pilot bit pattern 7 = (1	00110101111000)
Pilot bit pattern 8= (0	0 0 0 1 1 1 0 1 1 0 0 1 0 1)

35. (Twice Amended) A frame structure for an uplink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the uplink DPCCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $3 \le N_{pilot} \le 8$  and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

		whe	n <sub>Npi</sub>	<sub>lot</sub> = 5			,	when N	pilot =	6	
Bit #	0	1	2	3	4	0	1	2	3	4	5
Slot #0	1.	1133	1	1.1	. 0	1	1	1.	1	1.5	0
1	0	0	1	(1)	.0	1	0	0	1	1.3	. 0
2	**0	10	1	0	1	1	0	1	1	0	1
3	0	0 3	1	0 -	0	1	0	0	1	0	0
4	1-	- 0	1	0	184	1	* 1	. 0	1	0.18	1
5	1.	1	1	1.1	0	1	1	.1	1	1	0
6	1.	10	1	100	0	1	TOTAL	m lim	1	0.	.0
7	10	~ 0	1	-0;	0.	1	1308	0.4	1	. 0	0
8	701	311	1	1.	40	1	0.	至有害	1	1	0
9	11	198	1	115		1	1	1	1	11	:1
10	0	1.	1	0	<b>3419</b>	1	0	1.	1	0.0	1
11	1	0	1	1	1	1	1.	0,0	1	11	1
12	1.5	0	1	0	0.	1	*1	0	1	0	0
13	0 -	0.	1	1	. 1	1	0	0	1	1	1
14	0	0:40	1	1.1	1.	1	1.0	0	1	1100	1

			whe	n <sub>Npi</sub>	1ot = 7						when N	oilor =	= 8		
Bit #	0	1	2	3	4	5	6	0	1	2	3	4	5	6	7
Slot #0	1	1.1	31	- 1	-les	0 4	1	1	61.	1	Lal	1	1 1	1	1.0
1	1	0	0	1	1	0	1	1	0	1	0	1	1.1	1	1
2	1	0	1	1	0	1	1	1	0	1	1	1	0	1	1
3	1	S 0	0	1	0.4	0 3	1	1	0.	1	0.0	1	0	1	1
4	1	~ 1	-0	1	0	1	1	1	1	1	0 1	1	0	1	1
5	1	101	.1	1	1.6	0	1	1	1.	1	1	1	1 1	1	1
6	1	1	THE !	1	0	0	1	1	1	1	1 3	1	0	1	1 ,
7	1	1	0	1	0.45	. 0	1	1	1	1	0 -	1	0	1	
8	1	8.0	1	1	1-8	Ò.	1	1	100 at	1	61 40	1	1.1	1	1
9	1	T T	1	1	1	1	1	1	1	1 -	1	1	11	1	
10	1	0.3	1	1	.0	1.0	1	1	0 -	1	1100	1	0	1	0
11	1	1.1	0.	1	24	1	1	1	6.84 0	1	0.3	1	161.4	1	12
12	1	11	0	1	0	0	1	1	1	1	0	1	0	1	1
13	1	0	0.	1	100	1	1	1	0	1	0	1	1 1	1	1
14	1	<b>80</b>	0	1	1 32	1.	1	1	0	1	0.5	1	121	1	1

36. (Twice Amended) A frame structure for a Random Access Channel (RACH) in a communication system, wherein the improvement comprises each frame of the RACH having 15 slots and  $N_{\text{pilot}}$  number of pilot bits in each slot, where  $N_{\text{pilot}}$ =8, and pilot bit patterns comprise:

				Npilot	= 8			
Bit #	0	1	2	3	4	5	6	7
Slot #0	1	1	1	k.1.4	1	1 1	1	1.0
1	1	0	1	0	1	1.1	1	0
2	1	0	1	i i	1	0	1	
3	1	0	1	1.0	1	0	1	1:0
4	1	21.	1	30 83	1	0	1	281
5	1	30197	1		1		1	20
6	1		1	<b>W</b> 180	1	0.0	1	0
7	1	關語	1	0.2	1	Ô	1	0
8	1	0	1	1	1	1	1	0
9	1	篇 1 3	1	1	1	13	1	-1
10	1	0	1	1	1	0	1	134
11	1	1	1	0	1	100	1	1
12	1	1	1	0	1	0	1	0
13	1	0	1	0	1	1.	1	1.1
14	1	0	1	0	1	1	1	1

37. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $2 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

	Npilot =	when	Npilot =		when N	pilot = 8	3				when N	pilot = 10	5		
Symbol #	0	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	11	11 <sup>kg</sup>	11	10 2	11	11	11	10	11	11	11	10
1	00	11	00	11	00	11	10	11	00	11	10	11	11	11	00
2	01	11	01	11	01	11	01	11	01	11	01	11	10	11	00
3	00	11	00	11	00	11	.00	11	.00	11	00	11	.01	11	10
4	10	11	10	11	10 <sup>8</sup>	11	01	11	10	11	-01	11	11	11	11
5	11	11	2.1.1	11	116sf	11	10	11	111	11	10	11	01:	11	01
6		11	11178	11	115	11	-00	11	11.	11	.00	11	10	11	11
7	10	11	10	11	10:	11	00	11	10	11	* 00	11	1.0	11	- 00
8	01	11	01	11	0.1	11	10	11	01	11	10	11	00	11	11
9	11	11	21174	11	11%	11	11.2	11	11	11	111	11	.00	11	11
10	01	11	01	11	01	11	501 59	11	01	11	01	11	11.	11	10
11	10	11	10	11	10 4	11	3.11	11	10	11	6 11	11	00	11	10
12	10	11	10	11	10	11	00	11	10'~	11	-00	11	01	11	01
13	00	11	00	11	.00	11	11.5	11	00	11	311	11	00	11	00
14	00	11	00	_ 11	-00	11	司拉	11	00 4	11	3.11	11	10	11	01



38. (Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and  $N_{ploc}$  number of pilot bits in each slot, where  $2 \le N_{ploc} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{ploc}$  number of pilot bits:

	when	Npilos 4	w	hen <sub>N</sub>	/pilot =	8			v	hen N	ipilos =	16		
Symbol #	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	01	10	11	.00	00	10.	11	00	00	10	11	.00	00	10
1	10	10	11	00.	00	01	11	-00	00	01	11	10	00	10
2	113	10	11	119	00	00	11	4110	00	00.	11	.103	00	11
3	105	10	11	10	00	201	11	10	00	015	11	100a	00	00
4	200	10	11	11	00	111	11	11/	00	311	11	01	00	10
5	01	10	11	00	00	410.	11	00	00	10.	11	e11,	00	00 ′
6	01	10	11	10	00	10 -	11	10/	00	10	11	01*	00	11
7	00:	10	11	10	00	117	11	10	00	:113	11	10	00	11
8	11	10	11	00	00	00	11	00.	00	00	11	01	00	01
9	01 -	10	11	01	00	10	11	.01	00	10	11	01	00	01
10	11	10	11	-417	00	500g	11	11	00	:00.	11	00:	00	10 .
11	00	10	11	01	00	11	11	01	00	.11	11	00	00	01
12	00	10	11	10	00	1110	11	10	00	11.	11	11,	00	00
13	10	10	11	01	00	01	11	01	00	01	11	10	00	01
14	-10	10	11	01	00	01:	11	01	00	01	11	11	00	11

39. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and  $N_{\text{pilor}}$  number of pilot bits in each slot, where  $8 \le N_{\text{pilor}} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{\text{pilor}}$  number of pilot bits:

		when N	<sub>rin</sub> = 8					when N	<sub>au</sub> = 10	5		
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11.2	11	10.	11	3 2445 6	11	10%	11	11	11	-10
1	11	00	11	10	11	00	11	例10%	11	11	11	00
2	11	01	11	01	11	01	11	01%	11	10.	11	- 00
3	11	00	11	00	11	00	11	00	11	** 01	11	10
4	11	10	11	01	11	10	11	01	11	11	-11	- 11
5	11	41.7	11	10	11	11	11	10	11	01	11	- 01
6	11	11	11	00	11	41	11	00	11	10	11	11
7	11	10 %	11	00	11	10	11	00	11	10	11	00
8	11	@01 <sup>(1)</sup>	11	10	11	. 01	11	10	11	00	11	.11
9	11	11.	11	-11	11	111	11	<b>型有源</b>	11	00	11	- 11
10	11	.01	11	01	11	01	11	.01	11	11.	11	.10
11	11	10	11	111	11	10"	11	空11黨	11	00	11	10
12	11	210	11	00	11	10	11	-00	11	g-01	11	01
13	11	00.4	11	11	- 11	0.0	11	F1118	11	00	11	00
14	11	00	11	11	11	00	11	11	11	10	11	01



40. (Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $8 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

		N <sub>otes</sub>	= 8					N <sub>plet</sub> =	= 16			
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	00	00	10	11	.00	00	10	11	00	00	10
1	11	= 00	00	01	11	00	00	0.01	11	10	00	10
2	11	11	00	-00	11	-11	00	00	11	10	00	_ 11 -
3	11	10	00	01	11	10	00	01	11	: 00	00	00
4	11	211	00		11	2311	00	11.3	11	01.	00	10
5	11	00.	00	110	11	9.00	00	1000	11	11.	00	.00
6	11	10	00	10	11	.10	00	10	11	01	00	,11
7	11	10	00	11	11	10	00	101	11	10 ° 01	00	11
8	11	×005	00	00	11	00	00	00	11	01	00	01
9	11	01	00	10	11	01	00	10	11	01	00	∴ 01
10	11	do:11 %	00	:00	11	11	00	.00	11	00	00	10
11	11	01	00	1.1	11	01	00	11	11	~ 00	00	01
12	11	2 10 5	00	11	11	10	00	111	11	11	00	00
13	11	01	00	01	11	01	00	01	11	10	00	01
14	11	01	00	01	11	.01	00	01	11	11	00	11



## Clean Set of Amended Claims

- (Thrice Amended) A method of establishing a communication channel between a base station and a mobile station, comprising:
- (a) generating control signals and data signals within the communication channel, said control signals having a first sequence of L-bits and a second sequence of L-bits;
- (b) autocorrelating the first and second sequences to generate first and second autocorrelated values;
- (c) cross-correlating the first and second sequences to generate first and second crosscorrelated values; and
- (d) combining the first and second autocorrelated values and the first and second cross-correlated values, wherein the communication channel comprises a plurality of frames, each frame having L number of slots and each slot has N number of pilot bits such that there are N number of sequences of L-bits in a frame, said first and second sequences being sequences of the N number of sequences.

(Amended) The method of claim 1, wherein between adjacent sequences, there are a prescribed number b<sub>3</sub> of bit values which are the same and there a prescribed number b<sub>4</sub> of bit values which are different such that b<sub>3</sub>-b<sub>4</sub> is +1 or -1.







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(Twice Amended) The method of claim 1, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

(Amended) A method of establishing a communication channel, the method comprising:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits which are different between the two adjacent words from 1 to 15 is +1 or -1, wherein the pilot bits are used in a communication system.

(Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising:

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generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number  $(b_0)$  of bit values equal to "0" and a second prescribed number  $(b_1)$  of bit values equal to "1" such that  $b_1-b_0$  is  $\pm 1$  or  $\pm 1$ , wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and opposite in polarity, are formed, wherein the pilot bits are used in a communication system.

(Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number of N words has a first prescribed number  $b_0$  of bit values of "0" and a second prescribed number  $b_1$  of bit values of "1", such that  $b_1$ - $b_0$  is +1 or -1, wherein the pilot signals are used in a communication system.

(Amended) A communication link between a user equipment and a base station comprising a plurality of layers, wherein one of the layers is a physical layer for





establishing communication between the user equipment and the base station and the physical layer has at least one of data and control information, one of the control information being a pilot field of N-bits transmitted for 15 slots such that N words of 15 bits are formed, wherein a pair of N words is cross-correlated and a pair of N words is autocorrelated, wherein the pilot field of N-bits is used in a communication system.

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(Amended) Pilot sequences for at least one of radio frame synchronization and channel estimation of a communication system comprising:

a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point; and,

a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein

the first and second code sequences have a significant cross-correlation values having polarity opposite to said significant autocorrelation value at a specific delay point, and the first and second code sequences are used in a communication system.



(Amended) Pilot sequences for at least one of frame synchronization and channel estimation of a wireless communication system comprising:

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a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point; and

a second binary code sequence having the same autocorrelation characteristic as the first code sequence, wherein

the first and second binary code sequences have maximum autocorrelation values at the same specific delay point, and the first and second binary code sequences are used in a wireless communication system.

333. (Twice Amended) A frame structure for a communication system, each frame having 15 slots and each slot having N number of pilot bits, where  $2 \le N \le 16$ , such that there are N number of pilot bit patterns of 15 bits in the frame, wherein the improvement comprises N number of pilot bit patterns having at least one of the following pilot bit patterns:

Slot No	1 2 3
415	
Pilot bit pattern 1 =	= (1 0 0 0 1 1 1 1 1 0 1 0 1 1 0 0)
Pilot bit pattern 2 =	= (1 0 1 0 0 1 1 0 1 1 1 0 0 0 0)
Pilot bit pattern 3 =	= (1 1 0 0 0 1 0 0 1 1 0 1 0 1 1)
	(001010000111011)
	(1 1 1 0 1 0 1 1 0 0 1 0 0 0 1)
	= (1 1 0 1 1 1 0 0 0 0 1 0 1 0 0)
	= (1 0 0 1 1 0 1 0 1 1 1 1 1 0 0 0)
Pilot bit pattern 8=	(000011101100101)



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28. (Twice Amended) A frame structure for an uplink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the uplink DPCCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $3 \le N_{pilot} \le 8$  and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

**v** N0800

			whe	n <sub>Npilot</sub>	= 5			wł	nen N	pilot =	6
Bit #	0	1	2	_ 3	4	0	. 1	2	3	4	5
Slot #0	1	1	1	1"	0	1	11	1,	1	1	0
1	0	.0	1	1	0	1	0	0	1	1.	.0
2	0	1.1	1	0.	S-1/2	1	0	:415	1	0 7	1.
3	. 0	.0.	1	0./	0	1	20.	Oal	1	.0	. 0
4	1	0.	1	0	.1	1	E i	0.	1	- 03	21
5	11:	1212	1	16	7.0	1	<b>Mark</b>	*11	1	48	0
6	1	3.1	1	. 0	0	1	10	11	1	0.	0
7	21.	0	1	0.	$\sim 0$	1	1	.0	1	0	. 0
8	0.	1	1	91	10	1	0	3.97	1	1	0
9	1	11	1	1	177	1	1	11	1	1	1
10	0	1	1	0.	1.	1	0,	1-1	1	0	1
11	1	150	- 1	12	100	1	9-1	0	1	41	- 1
12	1	0	1	0	0.	1	1-	0	1	-0	0
13	0	.0	1	1	l.	1	0.	. 0	1	110	1
14	. 0	0	1	1	100	1	0	0	1	11	1

				vhe	n <sub>Npilot</sub> :	= 7					wl	nen N	pilos = 8		
Bit #	0	1	2	3	. 4	5	6	0	1	2	3	4	5	6	7
Slot	1	1.1	1	1	4123	0	1	1	1.	1	1.1	1	1 1	1	0
#0	1	.0	.0	1	100	0	1	1	0	1	0	1	1-	1	0
1	1	0.	11	1	0	28.1 (2)	1	1	.0	1	5.1	1	0	1	1
2	1	0 .	0	1	0.3	0	1	1	0.	1	<b>360</b>	1	0	1	0
3	1	1.	0.	1	0	21	1	1	11	1	0	1	0	1	1
4	1	212	1100	1	1.9	0.	1	1	1	1	@16	1	11.	1	.0
5	1	18.2	24.23	1	0.0	0.	1	1	19.196	1	71	- 1	0	1	0
6	1	170	ō.	1	0	0	1	1	13	1	0	1	0 1	1	0
7	1	0	21	1	1.3	0.	1	1	0	1	The state of	1	1	1	0
8	1	130	11.	1	2 介國	1	1	1	14	1	11	1	1	1	1
9	1	0.	1	1	0.3	總和灣	1	1	0.	1	1	1	0	1	1
10	1	1-1-10	00	1	1-	<b>21</b>	1	1	> 1	1	1:0	1	1	1	1
11	1	20 100 W	0	1	0	0	1	1	1 12	1	-30	1	140	1	0
12	1	0.0	0	1	1 1	1	1	1	0	1	0	1	11	1	1
13	1	. 0	0	1	1.1	5.1	1	1	1.0	1	0	1	1 1	1	1.1
14		100	Trans.		2 19				1000						1



Docket No. K-090B

(Twice Amended) A frame structure for a Random Access Channel (RACH) in a communication system, wherein the improvement comprises each frame of the RACH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $N_{pilot}$ =8, and pilot bit patterns comprise:

					Npilot	= 8		
Bit #	0	-1	2	3	4	5	6	7
Slot	1	1 1	1	1,123	1	1.	1	. 0
#0	1	0	1	0	1	2.1	1	0
1	1	0	1	. 1	1	0	1	100
2	1	×0.	1	0.	1	0	1	330
3	1	1	1	0	- 1	0	1	25
4	1	-31	1	12	1	1 1	1	.0
5	1	Sec. 1	1	¥1.	1	0.0	1	-0
6	1	P1	1	0	1	0	1	0
7	1	0	1	1	1	1	1	0
8	1	<b>第1</b>	1	49	1	1	1	1
9	1	0	1	1	1	0	1	1
10	1	sint J.	1	100	1	100	1	12.1
11	1	1	1	0	1	0	1	O
12	1	0.0	1	0	1	18:	1	- 1
13	1	0.0	1	0	1	1 100	1	133
14	1	19		150		10.55		130

(Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $2 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

Ċ

	Npilot =	hen ,	t <sub>pilot</sub> = 4		wh	<sub>lot</sub> = 8	when <sub>Npilot</sub> = 16								
Symbol #	0	0	1	0	1	2	3	0	1	2	3	4	5	6	7
Slot #0	11	11	11	11	1127	11	100	- 11	<b>《油瓶</b> 塞	11	10**-	11	11	11	10
1	00	11	.00	11	< 00 %	11	集10	11	00	11	10.	11	11	11	. 00 .
2	01	11	01	11	01	11	501	11	-01	11	01	11	10	11	00
3	00	11	00	11	00	11	00	11	00	11	00	11	01	11	10
4	10	11	20.	11	10.0	11	01	11	10	11	01	11	11	11	11
5	. 11	11	11	11	# 11 S	11	110	11	110	11	-10	11	- 01	11	01
6	11 10	11	211	11		11	2.00	11	115.5	11	00	11	10	11	11
7	10	11	10	11	10 %	11	- 00	11	10	11	00	11	10 -	11	00
8	01 11	11	:01	11	01	11	10.	11	017	11	10	11	00	11	11
9	11	11	#i1.	11	11	11	411	11	114	11	114 -	11	:00	11	- 11
10	- 01	11	01	11	2.01	11	01	11	01	11	01	11	11	11	10
11	10 10	- 11	. 10	11	910.8	- 11	11	11	10	11	11	11	.00	11	10
12	10	11	10	11	10	11	00.	11	10	11	00	11	01	11	01
13	00	11	. 00	11	00	11	11	11	00	11	11	- 11	00	11	00
14	00	11	₹ 00	11	00	11	1494	11	00	11	* 11	11	10	11	01





Docket No. K-090B

(Twice Amended) A frame structure for a downlink Dedicated Physical Control Channel (DPCCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the downlink DPCCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $2 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

	hen N								when Npilot = 16							
S ymbol # S lot #0 1 2 3 4 4 5 5	0	1	0	1	2	3	0	1	2	3	4	5	6	7		
	01	10	11	00	00	10	11	-00	00	10	11	00	00	10		
lot #0	10	10	11	00	00	01	11	<b>▶00</b>	00	01	11	10	00	- 10		
1	11	10	11	11	00	00	11	.11	00	00.	11	10	00	. 13		
	10	10	11	10	00	01	11	, 10	00	:01	11	.00	00	00		
3	00	10	11	11	00	3113	11	11	00	411	11	01	00	- 10		
	.01	10	11	00	00	10	11	00	00	110:	11	11:	00	. 00		
	-01	10	11	10	00	10	11	10	00	10	11	01	00	1;		
6	00	10	11	10	00	11	11	10	00	11	11	10	00	11		
7	411	10	11	00	00	00.	11	,:00	00	*00	11	01	00	01		
8	01	10	11	01	00	.10	11	01	00	10	11	01	00	0		
9	41	10	11	44.	00	00	11	.11	00	00	11	00	00	- 10		
1	00	10	11	01	00	11	11	01	00	111	11	00	00	0		
0	.00	10	11	10	00	11	11	10	00	211	11	11	00	00		
1	10	10	11	.01	00	01%	11	01,	00	010	11	, 10	00	01		
1	110	10	11	.01	00	501	11	01s	00	-01	11	1111	00	11		
1	- W					22.3		200		2000		NAME OF		*		
2	19623			300		Car		20		20072		TI DIGINA		-		
1	Sec. 1					26				( );				13.		
3	1.3					1100		100		43		1		8		
1	SL			160		2.3		100		140		3.0				
4	1885			- 3		. 1		1		1 1		1				





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(Twice Amended) A frame structure for a Secondary Common Control Physical Channel (S-CCPCH) in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $8 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

Volto

Symbol #		wł	ien N	<sub>tot</sub> = 8	when N <sub>obs</sub> = 16									
	0	1	2	3	0	1	2	3	4	5	6	7		
Slot #0	11	11	11	10	11	. 11	11	10	11	11	11	10		
1	11	≤ · 00 ·	11	10h	11	- 00	11	10 m	11	11*	11	00		
2	11	01	11	01	11	01	11	01	11	10	11	- 00		
3	11	. 00	11	.00	11	.00	11	000	11	01	11	10		
4	11	10	11	01	11	10	11	01	11	11	11	11		
5	11	11	11	. 10	11	11	11	10	11	01	11	01		
6	11	£ 11%	11	10	11	- Shi	11	3 00 4	11	10	11	.11		
7	11	10	11	00	11	10	11	00	11	10	11	00		
8	11	01	11	. 10	11	01	11	10.	11	006	11	11		
9	11	-117	11	11	11	11	11	- 11	11	00	11	11		
10	11	. 01	11	01.	11	01	11	.01	11	11	11	10		
11	11	* 10 ·	11	1/10	11	10	11	¥11	11	00	11	10		
12	11	10	11	00	11	10 .	11	-00	11	01	11	01		
13	11	00	11	11	11	00	11	2.11	11	.00	11	00		
14	11	00	11	11	11	. 00	11	11	11	10	11	01		



Docket No. K-090B

Physical Channel (S-CCPCH) using Space Time Transmit Diversity (STTD) encoding in a communication system, wherein the improvement comprises each frame of the S-CCPCH having 15 slots and  $N_{pilot}$  number of pilot bits in each slot, where  $8 \le N_{pilot} \le 16$ , and pilot bit patterns comprise at least one of the following based on  $N_{pilot}$  number of pilot bits:

1080 1080

			N <sub>ribs</sub> =	8	N <sub>ebe</sub> = 16									
Symbol #	0	1	2	3	0	1	2	3	4	5	6	7		
Slot #0	11	00	00	-10.	11	00	00	10	11	- 00	00	10		
1	11	. 00	00	.01	11	00	00	01	11	110	00	10		
2	11	11.	00	. 00	11	11.5	00	00	11	10	00	-11		
3	11	10	00	. 015-2	11	10	00	≥ 01	11	00.	00	00		
4	11	11	00	-11	11	. 11.	00	11.	11	01	00	10		
5	11	. 00	00	10	11	00	00	10	11	11	00	. 00		
6	11	10"	00	10	11	10 %	00	10	11	01	00	11		
7	11	10	00	11	11	10	00	Tr.	11	10-	00	11		
8	11	100	00	~00	11	00	00	00	11	0.1	00	01		
9	11	01	00	10	11	. 01	00	10	11	'01	00	01		
10	11	9,11	00	.00%	11	11.	00	∠ 00 h	11	00	00	10		
11	11	01	00	11	11	01	00	11	11	00	00	01		
12	11	10	00	. 11	11	.10	00	11	11	11	00	00		
13	11	01	00	01	11	01	00	. 01	11	10	00	. 01		
14	11	:01,	00	01.	11	01	00	-01	11	- 11	00	11		



